Claims

1. A pharmaceutical composition comprising an immunoglobulin Fc fragment as a carrier.

2. The pharmaceutical composition according to claim 1, wherein the immunoglobulin Fc fragment is aglycosylated.

3. The pharmaceutical composition according to claim 1, wherein the immunoglobulin Fc fragment is composed of one to four domains selected from the group consisting of C_H1, C_H2, C_H3 and C_H4 domains.

4. The pharmaceutical composition according to claim 3, wherein the immunoglobulin Fc fragment further includes a hinge region.

5. The pharmaceutical composition according to claim 1, wherein the immunoglobulin Fc fragment is selected from the group consisting of Fc fragments from IgG, IgA, IgD, IgE, IgM, and combinations and hybrids thereof.

6. The pharmaceutical composition according to claim 5, wherein the immunoglobulin Fc fragment is selected from the group consisting of Fc fragments from IgG1, IgG2, IgG3, IgG4, and combinations and hybrids thereof.

7. The pharmaceutical composition according to claim 6, wherein the immunoglobulin Fc fragment is an IgG4 Fc fragment.

8. The pharmaceutical composition according to claim 7, wherein the immunoglobulin Fc fragment is a human aglycosylated IgG4 Fc fragment.

9. The pharmaceutical composition according to claim 1, wherein the immunoglobulin Fc fragment is linked to a drug that is a physiologically active polypeptide.

10. The pharmaceutical composition according to claim 9, wherein the physiologically active polypeptide is selected from the group consisting of hormones, cytokines, enzymes, antibodies, growth factors, transcription regulatory factors, coagulation factors, vaccines, structural proteins, ligand proteins and receptors.

11. The pharmaceutical composition according to claim 10, wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, growth hormone releasing hormone, growth hormone releasing peptide, interferons, interferon receptors, colony stimulating factors, glucagon-like peptides, G-protein-

coupled receptor, interleukins, interleukin receptors, enzymes, interleukin binding proteins, cytokine binding proteins, macrophage activating factor, macrophage peptide, B cell factor, T cell factor, protein A, allergy inhibitor, cell necrosis glycoproteins, immunotoxin, lymphotoxin, tumor necrosis factor, tumor suppressors, metastasis growth factor, alpha-1 antitrypsin, albumin, alpha-lactalbumin, apolipoprotein-E, erythropoietin, highly glycosylated erythropoietin, angiopoietins, hemoglobin, thrombin, thrombin receptor activating peptide, thrombomodulin, factor VII, factor VIIa, factor VIII, factor IX, factor XIII, plasminogen activating factor, fibrin-binding peptide, urokinase, streptokinase, hirudin, protein C, C-reactive protein, renin inhibitor, collagenase inhibitor, superoxide dismutase, leptin, platelet-derived growth factor, epithelial growth factor, epidermal growth factor, angiostatin, angiotensin, bone growth factor, bone stimulating protein, calcitonin, insulin, atriopeptin, cartilage inducing factor, elcatonin, connective tissue activating factor, tissue factor pathway inhibitor, follicle stimulating hormone, luteinizing hormone, luteinizing hormone releasing hormone, nerve growth factors, parathyroid hormone, relaxin, secretin, somatomedin, insulin-like growth factor, adrenocortical hormone, glucagon, cholecystokinin, pancreatic polypeptide, gastrin releasing peptide, corticotropin releasing factor,

thyroid stimulating hormone, autotaxin, lactoferrin, myostatin, receptors, receptor antagonists, cell surface antigens, virus derived vaccine antigens, monoclonal antibodies, polyclonal antibodies, and antibody fragments.

12. The pharmaceutical composition according to claim 11, wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, colony stimulating factor, interferon-alpha, human erythropoietin and Fab' antibody fragment.

13. The pharmaceutical composition according to claim 1, wherein the immunoglobulin Fc fragment is linked to a drug through a peptide or non-peptide linker.

14. A method of improving in vivo duration of action of a drug, which is characterized by using an immunoglobulin Fc fragment as a carrier.

15. The method according to claim 14, wherein the immunoglobulin Fc fragment is aglycosylated.

16. The method according to claim 14, wherein the immunoglobulin Fc fragment is composed of one to four domains selected from the group consisting of C_H1, C_H2, C_H3 and C_H4 domains.

17. The method according to claim 16, wherein the immunoglobulin Fc fragment further includes a hinge region.

18. The method according to claim 14, wherein the immunoglobulin Fc fragment is selected from the group consisting of Fc fragments from IgG, IgA, IgD, IgE, IgM, and combinations and hybrids thereof.

19. The method according to claim 18, wherein the immunoglobulin Fc fragment is selected from the group consisting of Fc fragments from IgG1, IgG2, IgG3, IgG4, and combinations and hybrids thereof.

20. The method according to claim 19, wherein the immunoglobulin Fc fragment is an IgG4 Fc fragment.

21. The method according to claim 20, wherein the immunoglobulin Fc fragment is a human aglycosylated IgG4 Fc fragment.

22. The method according to claim 14, wherein the immunoglobulin Fc fragment is linked to a drug that is a physiologically active polypeptide.

23. The method according to claim 22, wherein the

physiologically active polypeptide is selected from the group consisting of hormones, cytokines, enzymes, antibodies, growth factors, transcription regulatory factors, coagulation factors, vaccines, structural proteins, ligand proteins and receptors.

24. The method according to claim 23, wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, growth hormone releasing hormone, growth hormone releasing peptide, interferons, interferon receptors, colony stimulating factors, glucagon-like peptides, G-protein-coupled receptor, interleukins, interleukin receptors, enzymes, interleukin binding proteins, cytokine binding proteins, macrophage activating factor, macrophage peptide, B cell factor, T cell factor, protein A, allergy inhibitor, cell necrosis glycoproteins, immunotoxin, lymphotoxin, tumor necrosis factor, tumor suppressors, metastasis growth factor, alpha-1 antitrypsin, albumin, alpha-lactalbumin, apolipoprotein-E, erythropoietin, highly glycosylated erythropoietin, angiopoietins, hemoglobin, thrombin, thrombin receptor activating peptide, thrombomodulin, factor VII, factor VIIa, factor VIII, factor IX, factor XIII, plasminogen activating factor, fibrin-binding peptide, urokinase, streptokinase, hirudin, protein C, C-reactive protein, renin inhibitor, collagenase inhibitor,

superoxide dismutase, leptin, platelet-derived growth factor, epithelial growth factor, epidermal growth factor, angiostatin, angiotensin, bone growth factor, bone stimulating protein, calcitonin, insulin, atriopeptin, cartilage inducing factor, elcatonin, connective tissue activating factor, tissue factor pathway inhibitor, follicle stimulating hormone, luteinizing hormone, luteinizing hormone releasing hormone, nerve growth factors, parathyroid hormone, relaxin, secretin, somatomedin, insulin-like growth factor, adrenocortical hormone, glucagon, cholecystokinin, pancreatic polypeptide, gastrin releasing peptide, corticotropin releasing factor, thyroid stimulating hormone, autotaxin, lactoferrin, myostatin, receptors, receptor antagonists, cell surface antigens, virus derived vaccine antigens, monoclonal antibodies, polyclonal antibodies, and antibody fragments.

25. The method according to claim 24, wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, colony stimulating factor, interferon-alpha, human erythropoietin and a Fab' antibody fragment.

26. The method according to claim 14, wherein the immunoglobulin Fc fragment is linked to a drug through a peptide or non-peptide linker.